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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,383	05/31/2001	Solomon Edlin		9847

29731 7590 05/14/2002

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EXAMINER

NGUYEN, JOSEPH H

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 05/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/871,383

Applicant(s)

EDLIN, SOLOMON

Examiner

Joseph Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "epitaxial layer" in claim 3 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The abstract of the disclosure is objected to because it should be in one single paragraph. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the sides". There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 2, the recitation of the term "differing" renders the claim indefinite. It is imperative that a dependent claim only further limits the claim from which

it depends, not alter the originally claimed invention. The term 'differing' suggests or implies that the dependent claim is defining something different than what it claims in claim 1. Therefore, this term should be removed or cancelled from the claim.

Claim 2 recites the limitation "the sides" and "the channels". There is insufficient antecedent basis for this limitation in the claim. Also, the term "this channel" is not understood because whether it refers to "channels of multi-element structures or "other channels" is not clearly defined.

Claim 3 recites the limitation "the sides". There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 4, the recitation of the term "differing" renders the claim indefinite. It is imperative that a dependent claim only further limits the claim from which it depends, not alter the originally claimed invention. The term 'differing' suggests or implies that the dependent claim is defining something different than what it claims in claim 3. Therefore, this term should be removed or cancelled from the claim.

Claim 4 recites the limitation "the sides" and "the channels". There is insufficient antecedent basis for this limitation in the claim. Also, the term "this channel" is not understood because whether it refers to "channels of multi-element structures or "other channels" is not clearly defined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Aoki et al.

Regarding claim 1, Aoki et al discloses on figure 3 transistor comprising elements of a bipolar static induction transistor a gate 13, a source 12 and a channel 15 on each of the sides of a substrate 10.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al as applied to claim 1 above.

Regarding claim 2, Aoki et al discloses on figure 3 substantially all the structure set forth in the claimed invention except one of the channels of multi-element structures on each sides of the substrate being thicker than other channels. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Aoki et al by having one of the channels of multi-element structures on each sides of the substrate being thicker than other channels for the purpose of obtaining a high power static induction transistor, since it has been held that where the general conditions of a claim are disclosed in the prior art discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al and further in view of Matsuzaki et al (EP 0613191 A2).

Regarding claim 3, Aoki et al discloses on figure 3 substantially all the structure set forth in the claimed invention except an epitaxial layer of the same conductivity type as the substrate having an impurity concentration of about 10^{17} cm^{-3} . However, Matsuzaki et al discloses on figure 3 an epitaxial layer 13 of the same conductivity type as the substrate having an impurity concentration of about 10^{17} cm^{-3} (col. 4, lines 50-55). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsuzaki et al by having an epitaxial layer of the same conductivity type as the substrate having an impurity concentration of about 10^{17} cm^{-3} for the purpose of obtaining an FET having a high mobility of channel electrons and a high saturation electron rate as taught by Matsuzaki et al (See Abstract).

Regarding claim 4, Aoki et al discloses on figure 3 substantially all the structure set forth in the claimed invention except one of the channels of multi-element structures on each sides of the substrate being thicker than other channels. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Aoki et al by having one of the channels of multi-element structures on each sides of the substrate being thicker than other channels for the purpose of obtaining a high power static induction transistor, since it has been held that where the general conditions of a claim are disclosed in the prior art discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 4994999 to Nishizawa discloses a multiplicity of field effect type semiconductor device.

US Patent 5304822 to Takagi et al discloses a static induction type device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (703) 308-1269. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 308-7382 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JN
May 3, 2002



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800